Livable Delaware

Livable Neighborhoods

Neighborhoods are not just a collection of individual houses, they are a community. Just as we are striving to create livable new neighborhoods as our State grows, we have an opportunity to turn our existing subdivisions into Livable Neighborhoods.

The differences between a subdivision and a neighborhood can be:

- The quality of the public space
- Connections to people and to daily needs
- Places to walk and ride bicyicles.
- Places for neighbors to meet and interact with each other and their environment.

This guide is designed to help people living in existing developments to create livable neighborhoods. It provides information about things to do and resources available to help improve community walkability, bikability, reducing car usage, improving community open spaces, and improvements individuals can make at their own homes.

I hope you find this useful in creating your own piece of Livable Delaware.

Ruth Ann Minner
Governor

Assessing Your Community's Walkability

As more people are choosing walking as a way to get exercise and as an alternative to taking another trip in their car, they are finding that pedestrians face many challenges when walking in our communities. The ones most often cited are lack of sidewalks, unsafe street crossings, and speeding motorists. These same challenges often prevent parents from sending young children out for a walk or bike ride.

The Walkability Checklist helps determine how easy it is to walk in your community. To complete the checklist, pick a destination and take a walk with a child. While on the walk consider how friendly your neighborhood is to walkers by answering the five following questions. Then give each question a rating on a scale of 1 to 6 (1 = awful, 2 = many problems, 3 = some problems, 4 = good, 5 = very good and 6 = excellent)

Walkability Checklist

1. Did you have room to walk?

☐ Yes ☐ Some problems:

☐ Sidewalks were broken or cracked
☐ Sidewalks were blocked with poles, signs, shrubbery, dumpsters, etc.
☐ No sidewalks, paths or shoulders
☐ Too much traffic
☐ Something else:

Locations of problems:

Rating: (circle one)

1 2 3 4 5 6

2. Was it easy to cross streets?

☐ Yes ☐ Some problems:

☐ Road was too wide
☐ Traffic signals made us wait too long or did not give us enough time to cross
☐ Needed striped crosswalks or traffic signals
☐ Parked cars blocked our view of traffic
☐ Trees or plants blocked our view of traffic
☐ Needed curb ramps or ramps needed repair
☐ Something else:

Locations of problems:

Rating: (circle one)

1 2 3 4 5 6

3. Did drivers behave well?

☐ Yes ☐ Some problems:

Drivers...

☐ Backed out of driveways without looking
☐ Did not yield to people crossing the street
☐ Turned into people crossing the street
☐ Drove too fast
☐ Sped up to make it through traffic lights or drove through traffic lights?
☐ Something else:

Locations of problems:

Rating: (circle one)

1 2 3 4 5 6

4. Was it easy to follow safety rules? Could you and your child...

Cross at crosswalks or where you could see or be seen by drivers?

☐ Yes ☐ No

Stop and look left, right and then left again before crossing streets?

☐ Yes ☐ No

Walk on sidewalks or shoulders facing traffic where there were no sidewalks?

☐ Yes ☐ No

Cross with the light?

☐ Yes ☐ No

Locations of problems:

Rating: (circle one)

1 2 3 4 5 6

5. Was your walk pleasant?

☐ Yes ☐ Some unpleasant things:

☐ Needed more grass,flowers or trees

☐ Scary dogs

☐ Scary people

☐ Not well lighted

☐ Dirty, lots of litter or trash

☐ Something else:

Locations of problems:

Rating: (circle one)

1 2 3 4 5 6

How does your neighborhood stack up?

Add up your ratings and decide.

Total:

1. **26 — 30** Celebrate! You have a great neighborhood for walking.
2. **21— 25** Celebrate a little. Your neighborhood is pretty good.
3. **16 — 20** Okay, but it needs work.
4. **11 — 15** It needs lots of work. You deserve better than that.
5. **5 — 10** Call out the National Guard before you walk. It's a disaster area.

(Source: Partnership for a Walkable America, Pedestrian and Bicycle Information Center, and the U.S. Department of Transportation. For a downloadable checklist see:

http://www.walktoschool.org/pdf/walkingchecklist.pdf)

Improvements for Walkability and Traffic Calming

The following measures could form part of the solutions to problems. Many drivers are in the habit of speeding on neighborhood streets. This creates a dangerous situation in neighborhoods with children playing, people walking and cyclists enjoying bike rides. Many of these harried drivers aren't thinking about safety, instead their main concern is that they are LATE for something. There are some ways that neighborhoods can take action to grab the attention of these drivers and convince them to slow down. This action can make streets safer for everyone.

- Yard signs or neighborhood signs can be effective. Slogans such as "30 is legal," "Neighbors drive 25," and "Thanks for not speeding" can improve the situation.
- If the static yard signs don't seem to be enough, take turns holding up signs during rush hours while waving and smiling at the drivers.
- Speed humps can reduce speed effectively
- Speed cushions help to slow down cars but allow buses to negotiate them without major discomfort to passengers
- The introduction of gateway features help to highlight the school to drivers and make them aware that they have entered a "sensitive" area
- Pinch points can reduce the road width giving a shorter crossing length for pedestrians while slowing down the traffic at the same time
- Cycle lanes can provide protection to cyclists from traffic

- Improvements on commonly used pedestrian routes encourage more people to use that route
- Creation of controlled pedestrian crossings at the conflict areas between cars and pedestrians could make walking safer

To improve and encourage walkability some communities are building sidewalks, trails and path-ways, safe street crossings and plentiful destinations within walking distance – all to encourage residents to get out and walk again. Just getting out and walking spurs more improvements because daily walking opens everyone's eyes to the need for sidewalks and trails, safe street crossings, more cautious drivers, safer walkers and bicyclists, and even state legislation to fund improvements.

As the community culture changes with the improvements they build an environment that's more inviting for every walker.

How to Increase Walking - Promote the Health Benefits for Children

Recognize kids who've walked the farthest or classes with the greatest participation. In Delaware, the Lieutenant Governor's Challenge is a great tool to use for class or school fitness programs. Children may earn bronze, silver and gold awards for participating.

Lt. Gov. John Carney's challenge is designed to get people to increase their level of physical activity. The program kicked off with a five-stop, statewide tour that took participants from Laurel, through Rehoboth, Dover, and Middletown, all the way to the Wilmington Riverfront.

Participants use a logbook to record activities and aim for 30 minutes of motion each day. To join, call the Division of Public Health at (302) 739-4724 or the Lt. Governor's Office at (302) 577-8787. On the web see:

http://www.state.de.us/ltgov/news-challenge-op.htm

Making Communities Bicycle Friendly

People want a less stressful lifestyle, a cleaner environment, affordable transportation and better health for their families. Bicycling is part of the solution. Bicycle-friendly communities have less traffic, better air, and improved public health. Bicycle-friendly neighborhoods and towns offer a good quality of life for families which leads to higher property values, business growth and increased tourism.

Health

Our nation is experiencing alarming rates of obesity due to sedentary lifestyles and poor diet leading to illnesses

such as heart disease, cancer, and diabetes. Bicycling is great cardiovascular exercise and helps reduce and maintain a healthy weight.

Stress Relief

Bicycling is also good for the mind. A bike ride relaxes stress levels and increasing self-esteem.

Pollution Free

Bicycling is the ultimate form of clean and efficient transportation. Bicycling transports people without burning fossil fuels, emitting pollutants, or increasing traffic congestion.

Saves Money over Auto Travel

The average American household spends18 cents of every dollar on transportation; this expense is second only to housing. Most American families spend more on driving than on health care, education, or food. The poorest families spend more than one-third of their income on transportation. Bicycling provides a simple solution to these problems.

Opportunity - Special Award Designation

The “Bicycle Friendly Communities” program offers national recognition to areas that provide safe and plentiful bikeways, access to convenient bike parking, and encourage share the road programs for non-cyclists.

Even if your community wouldn’t achieve bicycle-friendly status yet, by reviewing the application’s questions, you may find solutions to problems your community experiences. The League of American Bicyclist offers technical assistance through www.bicyclefriendlycommunity.org and technical expertise through the Pedestrian and Bicycle Information Center.

Safe Routes to Schools

In September 2002, Governor Ruth Ann Minner signed the "Safe Routes to Schools" law, aimed at making children safer as they walk or bike to Delaware schools.

The law creates a grant program in DelDOT, using existing funds, to enhance opportunities for children to bike or walk to school. Each school is unique and a mixture of educational, promotional policy changes, and solutions can be tailored to the school.

For more inforomation see: www.deldot.net

It is easy to take an everyday activity, like walking, for granted. However, we don't walk nearly as much as we used to – about a fifth less than 20 years ago – and the loss of this exercise is a health concern. Children who stay fit now by walking to school are more likely to stay active when they are older. Younger children walking to school with an adult have the chance to build up their road sense over time, making them better prepared for independent journeys later on.

A Safe Route to School - The "Walking School Bus"

Many communities who want to make walking to school safer have started walking school buses. A small group of children walk to school together under the

supervision of one or more adults. In Chicago, more than 175 schools participated in a walking school bus program created by the city and the Chicago Police Department. To find out more see: http://www.walkingschoolbus.org.

Details

The walking bus is a safe, fun, and healthy way to travel to and from school. Adult volunteers lead a group of children. Powered by legwork, the group follows a set route collecting pupils at designated stops.

Each walking bus has an adult driver at the front and an adult conductor bringing up the rear.

The bus runs rain or shine and everyone wears a reflective jacket. A rolling cart can be used to carry book bags. Along the way children can chat with friends, learn valuable road safety skills, and gain some independence.

All walking buses are different. They vary to suit the needs of the children and their parents. A school may have just one or many walking buses. Some walking buses operate only on certain days, and others operate only in morning or afternoon.

Benefits

1. **Exercise** – The walking bus provides a chance for everyone to take part in regular exercise. Evidence shows that more active children are likely to become more active adults. Just a 15 minute journey to and from school can contribute to half the daily recommended exercise for children, according the Pedestrians Society.
2. **Safety** – Adults supervise a large

and visible group safely to school

3. **Road Sense** – Children learn pedes-trian skills for dealing with traffic.
4. **Socializing** – Children talk and make new friends during the walk. Kids are ready to learn at school because they've had a chance to chat.

5. **Environment** – Foot journeys reduce traffic around schools, reduce air pollution, and improve the local environment.
6. **Easy Breathing** – Research proves that walks expose people to less air pollution than short journeys by car.

How to Set Up a Walking Bus

1. Approach your Principal, local Parent/Teacher's Association and Public Safety/Police Office for guidance.
2. Find out where interested parents live. The buses' success depends on enthusiastic coordinators and enough volunteers to share the "driving" and "conducting." Each volunteer can commit less time when more parents are involved.
3. The recommended ratio of adults to children is 1 to 8. Find out if third party public liability insurance can be covered by the local authorities.
4. Ask DelDOT to assess the suitability of proposed routes and give basic road safety training to the volunteers. High visibility jackets may be available through a local council, provided through fundraising, or sponsorship from a local business. Through the school, the Education department should do a

background check on volunteers.

5. Parents report that children love the chance to socialize with their peers before concentrating on work at school. Give children incentive stickers for each journey that they may trade for free goods in the school bookstore.

Some parents' schedules may be too tight to allow walking to school. One option is an escort rotation – where several families take turns in accompanying children. Parents should sign a consent form and discuss road safety guidelines with their child.

Another Safe Route to School - International Walk to School Day

Each October, millions of children, parents, teachers, and community leaders walk to school to celebrate International Walk to School Day.

Walk to School Day is an energizing event, reminding everyone about the simple joy of walking to school. The day can become a kick-off event for year-round efforts to increase walking and bicycling.

Walk to School Day brings parents, teachers, children, and community leaders together to focus on the importance of physical activity, safety and walkable communities. The events teach participants to regard walking as an active, safe, and healthy means of transportation.

What can you do?

1. Go to www.walktoschool.org to find out about this year's event and visit www.iwalktoschool.org to see what other countries are planning.
2. Talk to your principals, police, and parents right away. Line up partners. Invite government officials, local businesses and media to join the event.
3. Register your event on the Walk to School Day website and find press releases, flyers, and logos.

See a detailed guide on the Centers for Disease Control and Prevention's Kids Walk-to-School site at:
www.cdc.gov/nccdphp/dnpa/kidswalk/index.htm

Reducing Automobile Dependency

Excessive automobile dependence causes difficulties for communities and their residents. Autos and their supporting infrastructure can cause air, water, and noise pollution; serious accidents; wildlife mortality; habitat fragmentation; neighborhood disruption; and visual blight.

How Can We Depend Less on Automobiles?

- **Minimize Unnecessary Trips**

Consider alternatives to individual trips by combining errands in adjacent locations.

- **Make Walking Convenient**

Choose comfortable walking shoes. When you go out, bring a tote bag for items picked up along the way. Have an umbrella, raincoat, rain boots and flashlight ready.

- **Make Cycling Convenient**

Set up a comfortable, reliable bike for each family member. A bike trailer works well for transporting young children. Have appropriate equipment such as locks, lights, racks, saddlebags, and fenders. Longer rides call for rain gear or possibly specialized cycling clothes. Find a bike shop that you trust to provide technical advice and support.

- **Make Transit Use Convenient**

Learn the transit routes in your area and carry a bus schedule. Buy a monthly pass or a packet of discount

tickets so you don't need to rely on change.

- **Make Shopping Convenient**

Shop close to your home or worksite. If you travel by foot, bicycle or transit, you can use stores that offer delivery service.

- **Rideshare**

Register with rideshare organizations to coordinate travel with friends and colleagues.

- **Telework**

Substitute phone and email for physical travel when work allows.

- **Encourage Employers to Support Commute Trip Reduction**

If appropriate, encourage your employer to implement a "Commute Trip Reduction" program and offer appropriate financial benefits to non-drivers.

- **Learn About Your Automobile Costs**

Owning a car is more expensive than most people realize. Reducing your car's operating costs may provide significant savings.

- **Reduce the Number of Automobiles**

Reducing your household's car ownership (from 3 to 2, 2 to 1, or 1 to zero) will reduce temptation to use the car instead of other available options.

- **Choose an Efficient and Clean Vehicle**

Choose the most energy efficient and low-polluting model of auto that meets your needs. If you occasionally need a larger vehicle, rent or borrow rather than purchasing.

- **Support Community Initiatives**

You can support transportation alternatives in your community such as traffic calming, new urbanist design principles, municipal pedestrian and cycling improvements, smart growth policies, and public transit improvements.

- **Have a Positive Attitude**

Develop a positive attitude toward reducing car use and alternative transportation. Think of time spent walking or cycling as fun and relaxing exercise, rather than wasted time. Use time spent on public transit productively, by resting or reading. Challenge yourself to find ways to reduce your car use, and reward yourself with the financial savings.

(Sources: "Livability and Auto Dependency" by Dom Nozzi at http:www.user.gru.net and The Victoria Transport Policy Institute at http://www.vtpi.org)

Getting to Work - Carpooling

Carpools bring together employees who travel from the same area in one vehicle, thereby reducing traffic and parking congestion while improving air quality. Carpooling is convenient and flexible. Riding in a carpool saves up to thousands of dollars a year on gas, car maintenance and wear and tear. Also, participants don't have to deal with the stress of fighting traffic every day. Participants can sit back; use the ride to catch up on news, paperwork, and even sleep.

Decisions on how a carpool operates are governed by the individuals in that carpool. When forming the carpool, be sure to discuss the method of carpooling, cost (if any), specific times and emergency plans.

Carpool Suggestions

Meet with potential carpool partners in person to decide on details and determine whether you're suited to carpool together. The more you discuss in advance, the fewer problems you'll encounter once you're carpooling.

- Who will drive, and when?
- How often will you carpool? Every day? Once a week?
- Where will you pick up and drop off riders? Homes? Park and Ride lots?
- What should you do if you are ill and it's your turn to drive?
- What should you do if you have to work late or must go home during the day because of an emergency?
- How long will the carpool wait for a latecomer?

- Will you play the radio? Will you listen to a news or music station?
- Will you allow smoking?
- What stops will you make on the way?
- What will the duties of the driver be? Must the driver fill up the gas tank before picking up riders?
- What will the cost be? When should the participants pay? Will you allow riders who don't take a turn driving, but contribute a certain amount to costs?
- Will your car insurance company grant a reduced rate when you carpool?
- Discuss any other concerns you may have. You may want to set up a probation period. That way, if you're not comfortable with the arrangement, you can easily bow out and find another carpool.

Safety

The ultimate responsibility for safety rests with the carpool participants. Don't travel with someone you don't trust.

1. Always meet the person you're considering traveling with in a public place, before agreeing to travel together. Discuss driving safety.

2. Confirm your prospective travel partner's phone number by calling it. You might want to check the phone number in the phone book or online. Record your travel partner's driver's license or other photo ID information when you first meet them; ask for three personal references and check them. Exchange photographs.
3. Exchange emergency contact numbers before traveling and also share any important medical information.
4. A site like http://www.erideshare.com allows potential ride partners to correspond anonymously. Your email address and identification can remain private until you are ready to share it.

Vanpooling

A vanpool is a group of eight to thirteen people who commute together on a regular basis in a van. One person usually drives and maintains the van while riders pay a monthly fare. Vanpools are formed by individual commuters who want to find a better way to get to work.

Vanpooling works best for commuters who:

- Commute long distances – at least 20 miles one way
- Work Monday through Friday
- Work regular hours

Vanpoolers can save up to thousands of dollars each year over the cost of driving to work alone and also don't have to deal with the stress of fighting traffic. The longer your commute, the more economical a vanpool tends to be. Likewise, the more riders in the van, the less each rider pays, since costs are typically shared evenly.

Community Open Space - Community Gardens

Homegrown produce supplies a flavorful reward for a small amount of effort. Vegetables grown at home can also be nutritious – especially if they are grown organically. Compared to the high price of organic produce in the grocery store, even a small garden can produce hundreds of dollars worth of food each year. Neighbors can share efforts and garden space and operate like a mini-farm cooperative.

Starting the Garden

- Find out which community members are interested in the cooperative garden. Neighbors who don't wish to do gardening work themselves may be willing to contribute to supplies for a share of the produce.
- Take stock of growing space available in the community. Most vegetables need a minimum of six hours of direct sunlight. Lettuce and berry plants can get by with fewer hours of light. By cooperatively sharing space, the gardeners can make the most of the garden area available.
- Make a plan for the garden, deciding which plants you will be growing.
- To eliminate toxic fertilizers and pesticides, consider gardening organically. A good source for organic gardeners is: http://www.organicgardening.com
- Schedule the work that needs doing and the sowing dates for each plant.
- Ask community members to save vegetable and fruit scraps for compost. Grass clippings and leaves are also useful for a compost pile. (See the composting section in this document for more information.)
- Collect money to purchase the seeds or plants, and then follow the plan you have laid out.
- Plan some "harvest feasts" in the neighborhood to celebrate the new food source.

(Source: "The Livable Neighborhood," Global Action Plan)

Community Open Space & Backyard Wildlife Habitat

The National Wildlife Federation's Backyard Wildlife Habitat™ program can help you save a place for wildlife right in your own community or backyard, creating a home for migratory birds, native plant species and butterflies. The great part is it doesn't matter where you live or even how much yard or community open space you have.

Whether or not you want a certified yard, the following habitat principles can be used in your backyard or community open space.

Habitat Principles

- **Native Plants** – are the backbone of a Backyard Wildlife Habitat project. Plants native to the soils and climate of your specific area provide the best overall food sources for wildlife and also require less fertilizer, water and pest control. To find a list of plants native to your region, see the website mentioned on page 26.

- **Mow or Grow?** – Residential lawns occupy an estimated 25 million acres of land in the United States. Lawn dominated landscapes offer little value to wildlife and have very real environmental costs. A Backyard Wildlife Habitat site that incorporates locally native plants is a much better environmental choice.

Habitat Requirements

All wildlife requires four basic elements to survive: food; water; cover to protect against the elements and predators; and places to reproduce and bear young in safety.

- **Food** – Native vegetation can meet the year-round food needs of many species. Locally native shrubs, trees, and other plants produce food such as acorns, nuts, berries, and other seeds. For birds, feeders can supplement natural food sources.
- **Water** – Most species need water for drinking and bathing. A constant, reliable source of water is preferred over rain or morning dew. Water can be supplied in a birdbath, a small pond, or even a shallow dish.
- **Cover** – Wildlife needs cover for protection against predators and the elements. Native plants can do double duty as food sources and shelters. Densely branched shrubs, hollow logs, rock piles, brush piles, stone walls, evergreens, meadow grasses and deeper water also provide cover for many species.
- **Places to Raise Young** – To make a habitat complete, wildlife need safe places for reproduction and nurturing young animals. Mature trees can provide den sites for squirrels and nesting places for birds. Dense plantings of shrubbery provide safe areas for many species of wildlife. A pond or water garden provides much-needed breeding grounds for sala-

manders, frogs, and toads. Providing host plants for caterpillars will ensure the presence of butterflies in your habitat.

The Backyard Habitat program is offered locally through the Delaware Nature Society, the state affiliate of the National Wildlife Federation. The Nature Society tailored the program specifically to Delaware focusing on the state's native plants, wildlife habitat, watersheds, and water quality concerns. You may contact the Nature Society at Ashland Nature Center at 302-239-2334 (http://www.delawarenaturesociety.org) or visit Wild Birds Unlimited in Hockessin, Delaware.

Certified Backyard Wildlife sites nurture wildlife and benefit the overall quality of the environment by improving air, water and soil throughout the community. Habitat restoration is especially critical for wildlife that has lost acres to commercial and residential development. For more information on certifying your yard as an official Backyard Habitat call 800 822-9919 for a free application or download it from http://www.nwf.org/backyardwildlifehabitat. The site has an interactive online habitat planner to help assess and build your habitat.

Delaware Landowner Incentive Program (DELIP)

The Delaware Landowner Incentive Program (DELIP) provides technical and financial assistance to private landowners interested in restoring habitat for wildlife to benefit "species-at-risk."

This may range from:

- creating a shallow water wetland habitat for migratory shorebirds
- controlling invasive species in bog turtle habitats
- establishing native warm season grasses for upland sandpipers
- planting trees for the delmarva fox squirrel

Although DELIP money targets species-at-risk, habitat work for the target species always translates to benefits for a wide suite of species, including game.

For more information see: http://www.dnrec.state.de.us/fw/landowner/delip.htm or call (302) 653-2880 or (302) 284-4795.

Community Open Space & Your Yard - Plant a Tree

Benefits of Trees

- Air Purifying
- Wildlife Habitat
- Reduce energy consumption by buffering cold and heat from homes
- Enhance general livability

Plan Before Planting

- Consider the tree's *ultimate size* 20-30 years from now. Could it grow into power or communication lines? Could branches cause traffic hazards on nearby roads?
- Maintenance Needs – Any messy fruits or seeds, pruning refuse or leaf drop, any insect or disease problems? Sidewalk cracking?
- Are microclimate and soil conditions right for the tree? Consider the PH of soil, location (sunny, shady), is the area subject to wet conditions or drought?
- Does it add to the diversity of trees in the area? Is it a native species?
- It's usually better to emphasize longevity over fast growth and price.
- Will it be near buried utilities, if so; call "Miss Utility" before digging.

Planting Seasons

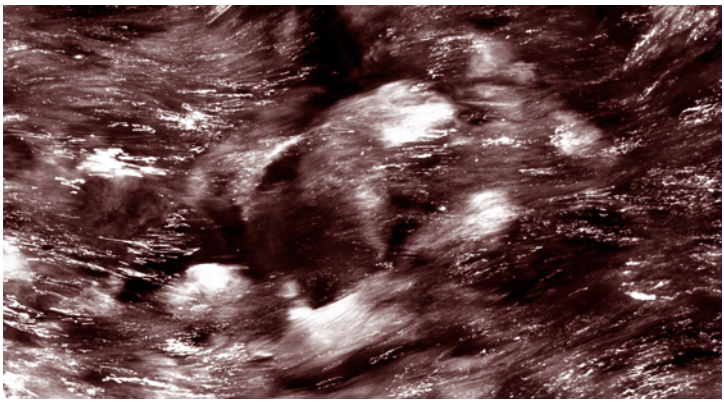
It is best to plant in the early spring well before the buds break out. The tree should be in before buds swell and new growth begins. This is also true for container and balled and burlapped trees. Other times when trees can be planted are late spring, early summer or early fall. Riskier times to plant are mid-summer, late fall, winter to early March. Planting trees during those times makes the planting more prone to failure.

Forestry Grants

Through a federal grant, the Delaware Forest Service offers approximately $35,000 annually to Delaware communities for tree planting, care, and management projects on publicly owned lands. The community must match the grant with either non-federal funds or in-kind services (volunteer time, staff-time, etc.) Grant applications are mailed in April and the grants are awarded in mid-summer.

For more information see:

http://www.state.de.us/deptagri/forestry/conser.htm



Wetland and Stream Protection

Why Stream Protection Matters

A healthy woodland stream can seem like a fairy tale setting; clear water babbles over rocks, streams meander between majestic trees, and birds sing overhead. This scenario can be reality when landowners understand the relationship between streamside management, water quality, and habitat. Delaware benefits from stream protection by reduced soil erosion; stabilized stream banks; enhanced natural areas, stream corridors and wildlife habitat; improved water quality; and reduced flood potential.

Dangers to wetlands and streams

- Excessive nutrients cause increased algae growth and a subsequent reduction in dissolved oxygen and fish diversity.
- High levels of sediment damage the stream system by suffocating fish and aquatic insects and by filling the crevices between rocks where fish and invertebrates live and hide.
- Suspended sediment clouds otherwise clear stream water, reducing sunlight penetration and limiting growth of aquatic plants.

Natural Prevention Measures

- Vegetated buffers along streams can help control erosion. Vegetation, especially woody roots, anchor stream bank soils and retard erosion.
- Exposed roots decrease the velocity of stormwater runoff providing critical wildlife habitat.
- Overhanging foliage improves the habitat and provides food for aquatic organisms.
- Shade moderates summer water temperatures, allowing sufficient oxygen to remain in the water.
- Forested riparian buffers – or the banks of a natural course of water – are important to maintaining the health of a stream. They provide food, nesting areas, and migration routes for a variety of wildlife. They remove nutrients from run-off while trapping sediment, acting as "living filters." This is especially important in farming communities where filter strips (as little as 75 ft. on either side of a stream) can protect water quality, allowing farms and streams to successfully coexist.

Signs of a Stream Under Stress

- Gullies in banks and floodplain
- Severely undercut banks
- Extensive bare soil on streambanks or floodplain
- Increased turbidity (suspended sediment or foreign particles), or persistently muddy water
- Heavy growths of algae
- Loss of fish and other aquatic life

What You Can Do

- Don't dump ANY materials into the stream or onto the floodplain, including yard debris, trash, or other pollutants
- Do not mow or cut vegetation to the water's edge
- Avoid cultivation or grazing next to the stream
- Leave native vegetation on streambanks and floodplains
- Allow a forested buffer of at least 75 feet; some buffer is better than none at all
- Control invasive exotic plant species (aggressive, spreading, non-native plant types)
- Monitor land use changes, especially development upstream

Most streams need little or no intervention. Others may need only some control of invasive non-native plant or animal species. However, streamside restoration may be the solution in sever erosion situations. Any restoration efforts should be well planned. For more information contact: Delaware Stream Watch at (302) 239-2334 or the Delaware Department of Agriculture at 302-739-4811.

Managing Water Runoff

Stories about environmental problems tend to focus on smoking industrial facilities, leaking toxic waste dumps, and messy oil spills. Water Pollution is also caused by smaller "nonpoint sources." Nonpoint source (NPS) pollution doesn't come from specific points such as pipe discharges but instead from areas of fertilizer and pesticide applications, atmospheric deposition, manure, and natural inputs from plants and trees. NPS pollution is the Nation's leading source of water quality degradation.

Substances Contributing to NPS Pollution:

- **Oils and Grease** — leaked onto road surfaces from car and truck engines, spilled at fueling stations, and discarded directly onto pavement or into storm sewers instead of being taken to recycling stations. Rain and snowmelt transport these pollutants directly to surface waters.
- **Heavy Metals** – come from some "natural" sources such as minerals in rocks, vegetation, sand and salt. But they also come from car and truck exhaust, worn tires and engine parts, brake linings, weathered paint, and rust. Heavy metals are toxic to aquatic life and can potentially contaminate ground water.
- **Debris** – Grass and shrub clippings, pet waste, food container, and other household wastes can lead to unsightly and polluted waters. Pet waste from urban areas can add enough nutrients to estuaries to cause premature aging, or "eutrophication."
- **Road Salts** — In the snowbelt, road salts can be a major pollutant in both urban and rural areas. Snow runoff containing salt can produce high sodium and

chloride concentrations in ponds, lakes, and bays. This can cause unnecessary fish kills and changes to water chemistry.

- **Fertilizers, Pesticides, and Herbicides** — If these are applied excessively or improperly, fertilizers, pesticides and herbicides can be carried by rain waters from the green parts of public right-of-way. In rivers, streams lakes, and bays, fertilizers contribute to algal blooms and excessive plant growth, and eutrophication. Pesticides and herbicides can be harmful to human and aquatic life.

Although individual homes might contribute only minor amounts of NPS pollution, the combined effect of an entire neighborhood can be serious. These include eutrophication, (excess nutrients in water bodies that stimulate excessive plant growth) sedimentation, and contamination with unwanted pollutants.

To prevent and control NPS pollution, households can learn about the causes of such pollution and take the appropriate (and often money-saving) steps to limit runoff and make sure runoff stays clean.

- **Limit Paved Surfaces –** Urban and suburban landscapes are covered by paved surfaces like sidewalks, parking lots, roads and driveways which prevent water from percolating into the ground. Runoff accumulates and funnels into storm drains at high speeds, eroding stream banks. Native fish species can't survive in these asphalt heated waters.

Some homes incorporate a system of natural grasses, trees, and mulch to limit paved areas. Wooden decks, gravel or brick paths, and rock gardens keep the natural ground cover intact and allow rainwater to slowly seep into the ground.

- **Landscape with Nature: Xeriscape –** Landscaping against the natural contours of yards and planting non-native plants (needing fertilizer and extra water) can increase runoff volumes, increase erosion, and introduce chemicals. In contrast, xeriscaping can dramatically reduce the potential for NPS pollution.

Xeriscape incorporates soil type, use of native plants, practical turf areas, proper irrigations, mulches, and appropriate maintenance schedules. Incorporating native plants, well suited to a region, reduces the need for irrigation and pesticides. Less irrigations means less runoff, while less chemical application keeps runoff cleaner.

- **Manage Septic Systems Properly –** Malfunctioning or overflowing septic systems release bacteria and nutrients into the water cycle, contaminating nearby lakes, streams, estuaries, and ground water. Septic systems should be well placed; away from high foot traffic (ground compression can cause collapsed pipes), and away from trees (roots can crack pipes or obstruct water flow). Septic system management means inspections and pumping every 3 to 5 years. Maintaining water fixtures and use of water-efficient showerheads, faucets, and toilets can limit household wastewater levels, reducing the chance of overflow.

- **Use, Store and Dispose of chemicals properly** -- Household cleaners, grease, oil, plastics, and some food or paper products shouldn't be flushed down drains or washed down the street.

Chemicals can corrode septic system pipes and may not be removed completely during the filtration process. Chemicals poured down the drain can interfere with chemical and biological breakdown of wastes in septic tanks.

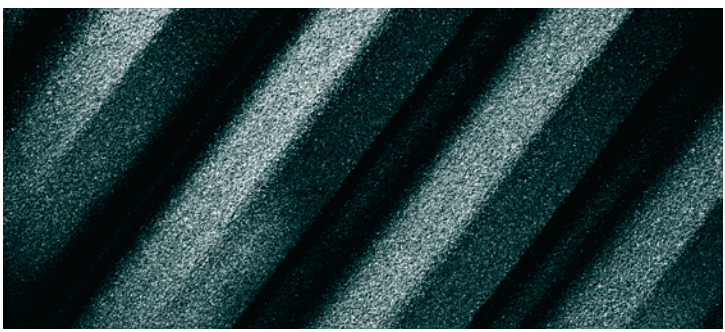
Homeowners can try natural alternatives to chemical fertilizers and pesticides and apply only the recommended amount. Natural predators like insects and bats, composting, and use of native plants can reduce or entirely negate the need for chemicals. Xeriscaping can limit chemicals applied to lawns and gardens.

If chemicals are needed in the home, store them properly to prevent leaks and access by children. Most cities have designated sites for the proper disposal of used chemicals.

For more information see the DNREC web site at http://www.dnrec.state.de.us or call the Delaware Coastal Management Program at (302) 739-3451.

Storm Drain Stenciling

Stenciling next to storm drains raises awareness that runoff water (carrying pollution from lawns and streets) doesn't go to a treatment facility, but instead goes into local waterways. Stenciling is an educational, interactive tool to engage people of all ages in community involvement for watershed pollution prevention.



Many people mistakenly believe that storm drains connect to sewer treatment systems. In most communities across the country, whatever enters the drains is discharged directly into a neighboring body of water without benefit of treatment. That's often a local lake, river, bay or groundwater.

Stenciling is especially valuable as ongoing citizen involvement and outreach since stencils need to be refreshed every few years. This brings the message back to public attention with a bright new image on the street and another opportunity for volunteers & media attention. The message on the street tells what not to do and why. Media and fliers explain what people can do and how.

Before Stencil Day

1. Get permission.

   It's VERY IMPORTANT that you get permission from your city or county public works office to stencil storm drains

2. Collect your materials:

   - storm drain stencils
   - door hanger cards / flyers*
   - map of stenciling area (ask Public Works or Storm Water office)
   - parent / guardian permission slips
   - letter of authorization from Public Works to stencil
   - traffic zone latex spray paint (note: 1 can = about 10 drains)
   - wire brush & whisk broom to clean gutter before painting

- consider work gloves & safety goggles for kids
- traffic safety vests & cones (ask Public Works for a loan)
- garbage bags (1 for wet stencils & 1 for litter headed for the drain & river)
- consider a large open box to shield against drifting overspray
- clean up rags

3. Get the word out. Develop or acquire flyers / door hangers explaining watershed pollution effects on the local river, lake, bay or groundwater. Describe local fish & wildlife habitat or drinking water issues. Include specific ways to prevent the problem.
4. Notify the media of your upcoming event

   This is an opportunity to spread your message to an even greater area. If working with students, they will be empowered to see their good work showcased to the community.

On Stencil Day

Storm drain stenciling is a neat project for Earth Day in April or Make a Difference Day in October. Choose a dry, sunny day. Pavement should be dry and warm. Avoid rainy days since stormwater will carry your paint down the drain. Avoid windy days because spray paint can drift onto nearby cars.

1. Use wire brush & whisk broom to sweep dirt away from drain so paint will stay on the pavement.
2. Position stencil next to (not over) the storm drain inlet where message will be most visible. Avoid areas where dirt and leaves will collect and cover the message.
3. Consider using a “triptych”, or large cardboard box cut open as a shield from drifting paint overspray (especially near parked cars).
4. Spray paint the message, being careful that paint doesn’t go down the drain. Two light coats are better than a thick single coat that puddles around the letters.
5. While some team members are stenciling, have others visit with local residents or businesses to hand out fact sheets or door hangers explaining where the storm drains go, plus local tips on how to prevent pollution to their lake, river, bay or groundwater.
6. Clean up. (Sources: EPA & http://www.earthwater-stencils.com)

Keeping the Cycle Going - Composting

Composting can help grow your communities' gardens rather than sending yard and kitchen scraps to the ever-expanding landfill down the highway. Compost is an excellent soil conditioner.

Compost Benefits:

- improves the structure, texture and aeration of the soil
- contains nutrients and trace elements that are essential to plant growth and releases them slowly throughout the growing season
- adds beneficial organisms to the soil
- reduces the need for chemical fertilizers and mulches
- reduces the water needs of your garden
- can reduce the quantity of waste sent to the landfill by 20% or more

The Composting Process

Composting is simply the natural decomposition of organic matter. Tiny organisms, known as decomposers, break down yard wastes and kitchen scraps into a humus-like material. Once you have established your compost pile, and a favorable environment for the decomposers, they go to work promptly.

The location of your compost bin should be:

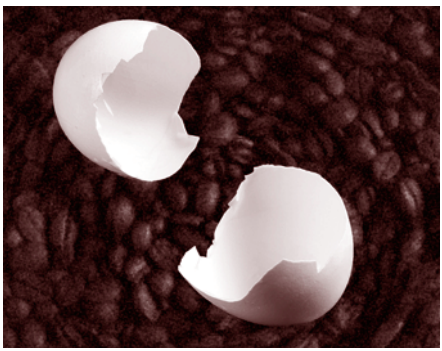
- flat and well drained
- shady rather than intense direct sunlight
- 20 ft. from the nearest house

- close to a source of water (within reach of a garden hose)
- away from trees or wooden buildings

Once the bin is in place you can begin filling it with yard waste and kitchen scraps. See the table below for what can and can not be composted. If you have stock-piled materials you can put them in all at once or gradually add to your compost bin as wastes become available. Alternating "greens" (high nitrogen) with "browns" (high carbons) speeds up the composting process.

Maintaining the Pile

You can choose how much effort to put into maintaining your compost pile. Your material will still turn to compost eventually even if you don't devote a lot of effort to maintenance. To speed up the process: chop or shred materials before adding, keep the pile moist (like a well wrung sponge), mix or turn the pile occasionally and add nitrogen (most piles tend to be high in carbon). These tips may lead to finished compost in 2 to 3 months – otherwise it may take 1 – 2 yrs. to completely decompose. Finished compost tends to accumulate at the bottom of the bin. Your compost it ready to use when it is dark brown, crumbly and has an earthy aroma.



Uses for Finished Compost

In the Garden:

- Spread a 3-4 inch layer on top of the soil, and work it in before planting.
- Apply as a top dressing to shrubs and garden plants; either leave the compost on the surface or work it into the soil
- Incorporate into feed furrows, place a handful into each transplant hole before transplanting annuals and perennials and use several handfuls for shrubs and trees.

On the Lawn:

- When building a new lawn, spread a 2-inch layer of compost over the area and work it into the soil to a depth of 6 inches.
- On an existing lawn, use as a top dressing by applying in a uniform layer ¼ inch thick. You can use a fertilizer spreader or broadcast the compost by hand, followed by light raking. The best time to top dress is the fall. (Note: Only compost that has been sifted through a fine screen should be used in this manner. A simple screen can be made using a wooden frame and a 3/8 or 1/2 – inch hardware cloth.)

In Potting Mix:

· To make your own potting mix combine fine-textured compost with sand, bark, and vermiculite or perlite.

To Learn More about Composting

This information was adapted from the Department of Natural Resources and Environmental Control (DNREC) webpage at http://www.dnrec.state.de.us .

Other Agencies that have Composting Information:

- The Delaware Solid Waste Authority at 1-800-404-7080
- The Delaware Composting Association, (Helen Waite at 302-422-4544).
- The University of Delaware's Cooperative Extension Office in each county: New Castle County 831-2506, Kent 697-4000 or Sussex at 856-7303.

Keeping the Cycle Going – Grasscycling

Are you throwing away a valuable organic resource?

Why make multiple trips to the trash can with your lawn mower bag? Our landfills need space for "real" garbage and you can help by mulching your nitrogen rich grass clippings. This natural fertilizer can reduce the need for supplements. Mulching mowers recycle grass and lawn debris right in your own backyard. This helps if your local garbage pickup no longer accepts lawn clippings or leaves. It makes more sense to use this organic resource to build a healthy lawn than to pay extra disposal fees.

More than 85% of "walk-behind" mowers are now labled as "mulching mowers" to respond to the public's environmental concerns. Like food processors for your lawn; the mowers use a special blade and enclosed deck to slice up your grass clippings (and dried leaves) numerous times before depositing them back deep into the turf, where they decompose in a few days. With a well designed mower, your lawn can be left with a clean, vacuumed appearance without any unsightly clumps or hedgerows of grass. Also, grass clippings won't cause thatch in your lawn. The cause of thatch is excess surface roots caused by over watering and fertilizing.

Signs of a Quality Mulching Mower

This list from **hometips.com**™ shares what to look for in a mulching mower:

- **Convertability.** Can the mower be easily converted from mulching to bagging or side-discharge? Sometimes it's difficult for the mower to cope with thick, lush, rapidly growing grass. You may want to temporarily switch to side-discharge mode to avoid clogs and prevent stalling out the mower. A bagging mower is useful in the fall, to collect leaves for mulching your vegetable garden or flower beds.
- **Engine type and horsepower.** A mulching mower should have at least 5 horsepower, preferably 6. Lower cost mowers may not have enough power to chop up clippings thoroughly. For mowing over hills, consider a mower with a two cycle engine, since they are constantly injected with lubricating oil.
- **Electric/cordless models.** In recent years, major manufacturers like Toro and Lawn-Boy have introduced innovative electric corded and cordless mowers, some with mulching capability.
- **Mulching Technology.** If you take a look at some competitive mowers, you'll see some distinct differences in how they solve the problem of chopping up grass fine enough so that it disappears. Most manufacturers design the mower's deck and blade so that the clippings will be stirred up and cut several times before being blown back into the grass.

- **Build Quality.** As with other consumer products, "you get what you pay for" when you buy a mulching mower. To take advantage of some of the advanced features discussed above, such as overhead-valve engines and high efficiency decks, you pay around $400 or more. There are also some good value mowers available for less than $300, but make sure that the product is supported by a dealer with a service network. Some dealers will avoid working on "bargain-basement" machines.

Water Conservation

The average person uses 50 gallons of water a day. Water obtained from a public water supply costs you money per gallon, so any conservation efforts can be a financial benefit to your family. Even water obtained from private wells is not unlimited since there can be a concern about wells going dry. These simple tips can help us all save money and preserve precious water supplies.

Indoors**:**

- Turn off the faucet while shaving, washing up, brushing teeth, and washing dishes. The average person uses 10.9 gallons of water from the faucet a day.
- Fix dripping and leaking faucets and toilets. A faucet leaking 30 drops per minute wastes 54 gallons a month.
- Don't run the tap to make water cold. Instead, keep a pitcher of water in the fridge.
- Put a plastic jug filled with water in the tank of conventional toilets. You'll save that much volume in water each time you flush.
- Throw used facial tissues into the waste basket

instead of using the toilet as a trash can. You'll save up to 6 gallons of water each time you don't flush.

- Wash only full loads of dishes and laundry. The average dishwasher uses 8-12 gallons each usage whether or not it's a full load.
- Install water-saving plumbing fixtures. A low-flow showerhead saves up to 7.5 gallons a minute.
- Take shorter showers or fill bathtub only part way. The average person uses 15 gallons a day in bathing and hygiene.

Outdoors:

- Raise your lawn mower cutting height. Longer grass needs less water.
- Use a pool cover. It will reduce water loss due to normal evaporation.
- Use mulch around shrubs and garden plants to save soil moisture. Apply organic mulches 4 inches deep to keep plants roots cool, prevent soil crusting, minimize evaporation, and reduce weed growth.
- Wash cars less frequently. If your car desperately needs a bath, take it to a car wash that recycles water.
- Sweep sidewalks and steps rather than hosing them. Eliminating a weekly 5-minute pavement hose-down could save between 625 and 2500 gallons of water per year depending on the flow rate.
- Keep fire hydrants closed. Preserve water and water pressure for fighting fires!

(Sources: www.delawarewatersupply.com and www.dec.state.ny.us)

Community Transportation

The Community Transportation Program is coordinated through the Delaware Department of Transportation. This program provides each member of the General Assembly with $300,000 annually to provide enhanced transportation within their representative district. The program is regulated by the Bond Bill Committee, Rule 12. Projects must meet 3 criteria: have a transportation component, be on public property or land dedicated to public use, and benefit more than one individual. Projects are recognized through constituent interest, municipality needs and/or civic organization request. For more information please contact your legislator.

Greenways

In 1990, the first greenway for Delaware was established to link existing park land between the Delaware River and the Brandywine by acquiring missing links of open space creating an “emerald necklace” of park land. A hiking/biking trail across these interconnected parklands helps to reconnect the communities.

These linear corridors of Open Space can be used for either conservation or recreation. They are stream corridors, abandoned railroad rights-of-way, scenic highways, and greenbelts around cities or river fronts. Since they are also linear, trails sometimes follow greenway corridors. Grenway trails get us out of our cars and provide safe off-road walking and biking.

Greenways - which have preserved many acres of endangered open space - help create more livable communities by providing a core green infrastructure.

(Source: Adapted from the “Connections” newsletter, comments by Grace
Van Gilder, Executive Director of Delaware Greenways)

For more information see:

http://www.delawaregreenways.org

Plants for a Livable Delaware Campaign

In June of 2004, The University of Delaware was awarded a $86,595 grant to establish the “Plants for a Livable Delaware” campaign. The goal of the project is to achieve greater biological diversity by identifying plant species that thrive without having detrimental effects on other plants in their ecosystem. The University agreed to match the grant for a total of $173,190 devoted to the program.

Booklets cn be picked up for free in participating nurseries and garden centers. The publication can help gardeners identify plants that threive without becoming invasive. To qualify a plant should:

- Pose no potential threat as invasive
- Have no serious disease or insect problems
- Adapt well to landscape situations in Delaware

10 of the worst invasive plants still sold in Delaware are:

- Norway Maple (Acer Platanoides)
- Bradford Pear (Pyrus Calleryana)
- Japanese Barberry (Berberis Thunbergii)
- Butterfly Bush (Buddleia Davidii)
- Winged Burning Bush (Euonymus Alatus)
- Privet (Ligustrum)
- Purple Loostrife (Lythrum Salicaria)
- Japanese Silvergrass (Miscanthus Sinensis)
- Periwinkel (Vinca Minor)
- English Ivy (Hedera Helix)

Pick up your copy of the Booklet at garden centers and nurseries displaying the campaign logo.

Invasive Plants:

- quickly overwhelm and displace existing natives
- they have few, if any, natural controls to keep them in check
- are second only to habitat loss as a great threat to biodiversity

Partners in this campaign are the Delaware Nature Society, the University of Delaware, the Delaware Nursery and Landscap Association, and the Delaware Department of Agriculture.

This document was made possible by a grant from the U.S. Environmental Protection Agency and the Delaware Department of Natural Resources and Environmental Control.

Livable Delaware

Office of State Planning Coordination